



Information Technology MASTER PLAN



MAY 2000

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EXECUTIVE SUMMARY

The City of San Jose is an information-based organization. If the City is to successfully respond to the challenges that lie ahead, support business goals and objectives, improve programs, measure performance, make good policy decisions, and respond to rapid changes in business requirements, it must continue to improve the way that it uses its technology and information resources.

San Jose is uniquely positioned in the technology center of the world. As the *Capital of Silicon Valley*, there is an acknowledgement that the City's use of technology and information systems should be much more advanced than it is today. Most would agree that investments in information technology (IT) have not been a priority. But there is also a growing realization that new technologies and up-to-date information systems are keys to enable the City to support and improve service delivery.

The success of the City's service goals and initiatives will depend, in large measure, on the effectiveness of its information systems. The systems—be they manual, mechanical, or electronic—must err on the side of serving citizens and the interdependent needs of all departments rather than the independent needs of a single business unit. A master strategy for information management should foster interdependency and integration of people, technology, and data.

This IT Masterplan was developed over the course of several months. It involved countless numbers of people who participated in interviews, surveys, workshops, and meetings. An Information Technology Planning Board (ITPB) was created, in part, to oversee the development of this plan and its subsequent implementation. From the outset, this plan was intended to be more than a prioritized list of information technology projects and related budget information. It was and is designed to be strategic in its focus and systemic in its approach. When the strategies identified in this plan are fully implemented, it should fundamentally change the way that the City views, buys, and manages its information resources.

The development of the IT Masterplan was a multi-phased effort. It began by taking a fresh look at the City's mission, vision, values, and priorities. The next phase assessed the current IT environment with regard to IT infrastructure, management practices, and IT-related projects. The plan goes on to articulate an IT management vision and agenda for the City to establish a framework by which to guide and monitor IT investments. By leveraging the analysis and work from the previous phases of this project, strategic IT initiatives were developed that support the City's business goals and IT management agenda.

The following initiatives are not in priority order. Work on some of the initiatives is already underway because the ITPB realized that certain initiatives could not wait until the plan was completed to begin.

Strategic IT Initiatives (additional detail for each initiative is included in the plan)

- Create an IT Planning Board and Develop an IT Masterplan
- Develop Departmental IT Plans That Link to the IT Masterplan
- Develop an IT Communications Plan
- Improve IT Staff and End-User Training
- Improve IT Staff Recruitment and Retention
- Formalize Project Identification, Prioritization, and Management Methods
- Update Information Management Standards, Policies, and Guidelines
- Integrate “Like” IT Functions Throughout the City
- Develop IT Performance Measures and Service Level Agreements
- Develop a City of San Jose Electronic Government (E-Government) Strategy

As with any strategic planning effort, the development of the plan is only the first step. If the City is going to implement the strategies outlined in this document, it must:

- Develop a marketing strategy to communicate this plan to City policymakers, management, and staff (e.g. staff meetings, Council presentation, City web site or Intranet).
- For each strategic IT initiative, develop detailed implementation plans that identify:
 - Who has lead responsibility and who has support responsibility
 - Specific actions/steps
 - Schedules and timeframes
 - Resource requirements (FTE, system, funding, etc.)
 - Barriers to implementation
- Present implementation plans and monthly progress reports the ITPB
- Establish a process to revisit and refresh the IT Masterplan on a regular basis.

The ITPB will be responsible for driving the implementation of this plan. Members of the ITPB will have to stay actively engaged in promoting the information management principles and strategies described in the pages of this document. Moreover, if the City wants to reform and refine its information management practices, new technology initiatives must be evaluated in light of the framework and strategies identified in this plan.

INTRODUCTION

The City of San Jose is a city in transition. As the 11th largest city in the U.S., San Jose is one of the most rapidly growing cities in the nation. The high-tech industry has exploded in recent years and the Silicon Valley has been at “ground zero” of this explosion. As a result, the City has experienced both the benefits and challenges associated with rapid growth and change. In order to respond to these changes and effectively serve a growing population, the City must rethink traditional business practices. “Business as usual” does not and can not exist.

In a rapidly changing world, government’s success depends, in part, upon its ability to quickly and intelligently mobilize resources in response to a range of complex problems and opportunities. This requires integrated, current, and accurate information about resources and program performance. To achieve this requires careful planning and wise investing.

In the absence of a coherent enterprise information management vision and plan, government agencies and institutions typically manage their information resources independently. The result is information systems and technologies that are often incompatible and duplicative. The City of San Jose needs to manage its information resources as strategic assets and work toward a shared information environment. This IT Masterplan establishes a framework for how information resources (technology, data, applications, and people) should be acquired, deployed, and managed to enable the City to effectively carry out its mission.

The Planning Process

The City’s last major IT planning effort resulted in the development of a *Computer Systems Masterplan* (CSM) in 1994. It was updated in 1996. In December of 1999, the City Manager’s Office commissioned the development of a new IT Masterplan for the City of San Jose. It was intended from the outset to be more than a prioritized compilation of technology projects. This plan was/is intended to be strategic in its focus. It set out to identify principles and strategies that would help reshape the way the City views and uses its information resources.

This IT Masterplan was developed over a period of several months. Numerous people at all levels of the organization were involved in different ways in the planning effort. Countless interviews were conducted, surveys taken, documents reviewed, and workshops given. The process used to collect and pull all of this information together is outlined below.

Task 1 – Convene An Information Technology Planning Board (ITPB)

An IT Planning Board was convened with representatives from the City Manager’s Office, City Department Directors, and local private industry (note: see ITPB Charter is in Appendix A). The ITPB was chaired out of the City Manager’s Office. The Board served as a guiding coalition to direct and monitor the activities of the IT Masterplan development process. This structure sets the stage for high involvement of staff and accountability for results. It also appropriately established the City as owner/driver of the plan and the Information Technology Department (ITD) as a resource to the ITPB.

Task 2: Review and Document City of San Jose Business Goals and Objectives

An important aspect of developing a comprehensive IT Masterplan is making sure that the IT goals and strategies that are developed support key business objectives. A series of interviews, workshops, and meetings helped define and document the business vision and key business goals, objectives, and core services

Task 3: Create an IT Management Vision and Agenda

Once the business vision and objectives were established, the City developed a vision for how its going to use and manage information resources (technology, applications, data, IT staff) to support its business goals and objectives. The IT management vision and agenda provides a common framework and set of expectations for how the City will procure, oversee, use, and manage its information resources for the next several years.

Task 4: Assess Existing IT Environment

Once the City established its business vision and goals and articulated an IT management agenda, this task assessed the “state of the state” regarding current IT assets, management practices, and IT-related projects. An assessment of the Information Technology Department (ITD) that was being conducted in parallel with this planning process provided much of the information needed for this portion of the IT Masterplan development.

Task 5: Develop Strategic IT Initiatives

Leveraging the analysis and work from Tasks 1 – 4 and the findings and recommendations from the ITD Assessment, strategic IT goals and key initiatives were developed that support the City’s business goals and IT management agenda.

Task 6: Development of Final Masterplan

The final draft of the IT Masterplan combined into one document the analyses and recommendations from Tasks 1 – 5. The final draft was presented to the ITPB for their review and recommendations. The ITPB’s edits and recommendations were incorporated into the final IT Masterplan document.

In regard to strategic planning, it has been said, “...the process is as valuable as the product.” The planning process spawns relationships, trust, discoveries, energy, and opportunities. Such has been the case with this planning effort.

The Participants

All of the people who participated in interviews, surveys, and workshops have contributed significantly to the relevancy and credibility of this plan. Their participation and candid communication have been invaluable. The management team members of the Information Technology Department and the ITD customers and staff who participated in the ITD Assessment project also deserve special recognition. The members of the Information Technology Planning Board have been meeting monthly to review and discuss the various components of the plan and provide valuable feedback. The ITPB members are listed below.

INFORMATION TECHNOLOGY PLANNING BOARD ROSTER

City Representatives:

Del Borgsdorf, City Manager
Kay Winer, Deputy City Manager
Debra Figone, Assistant City Manager
Ralph Tonseth, Director of Aviation
Carl Mosher, Director of Environmental Services
Bill Lansdowne, Police Chief
Bruce Staples, Assistant Fire Chief
Ken Phillips, Director of Information Technology
Nona Tobin, Director of Human Resources
Jane Light, Librarian
Alex Sanchez, Director of Housing
Jim Derryberry, Director of Planning, Building, Code Enforcement
Larry Lisenbee, Budget Director
John Guthrie, Director of Finance
Susan Shick, Director of Redevelopment Agency

Industry Participants:

Walter Curd, IT Director with Electro Glass
Kenneth Jackson, President and CEO of Innetix
Steve Cisler, formerly, Apple Computers

A special note of thanks goes to Wendy Walker, Administrative Officer for the Information Technology Department and the IT Masterplan Project Manager. Wendy's commitment to this effort and to staffing the ITPB is commendable.

CITY BUSINESS MISSION, VISION, VALUES, & PRIORITIES

Understanding a business' mission, goals, and direction is a prerequisite to developing meaningful strategies and recommendations for integrating information resources. An effective IT strategy is, in part, a byproduct of a clearly articulated business vision. This being the case, the ITPB felt that it was important to capture the City's business vision in this document. The strategies that follow in this report should act as an enabler of this mission and vision.

Mission

The City of San Jose provides excellent municipal services to its diverse residents and visitors in a timely manner. City employees are committed to maintaining excellence and efficiency in the delivery of services and by treating all people with understanding, dignity and respect.

Vision

The City of San Jose is an innovative and dynamic organization. It embodies a respect and care for its natural beauty and environment, and richness in its ethnic and cultural diversity. The City is a leader in environmental programs. It strives for expanding its cultural and economic horizons and for continued promotion of San Jose's excellence as a place of opportunity to live, work and do business.

Values

Values provide a common sense of continuity and common interest in order for people to function in an organization and a community. Values represent ideals of life and purpose -- the foundations which guide and govern each person from within. It is important, as individuals and members of the City organization to conduct ourselves in accordance with the following ten values:

- Show excellence and pride in our work
- Portray honesty and integrity in our conduct
- Ensure open communication
- Support innovation and change in the organization
- Treat all employees and residents fairly and equally
- Provide quality service
- Recognize residents as customers
- Demonstrate accountability to our residents
- Recognize individual worth
- Work in the City should be enjoyable

Policy Priority Areas

The City Council has had a series of meetings to discuss policy priorities. The policy priority areas that are described below are a summarization of the outcome of these discussions to date. It should be understood that these policy priorities are subject to revision as discussions continue.

Neighborhood Pride

Investing in community facilities, housing and services that contribute to neighborhoods where residents feel safe, proud and a sense of belonging.

Efficient Transportation Choices

Investing in services that contribute to a safe, convenient, economical and environmentally compatible intermodal transportation system.

Clean and Sustainable Environment

Investing in practices and services that contribute to a clean community and the long-term viability of San Jose's limited air, water and land resources.

Competitive Business Environment

Investing in services that contribute to business growth, job creation, and a strong and diverse economic base.

Safe Community

Investing in prevention and enforcement services that contribute to actual and perceived safety of the community.

Personal Growth and Enrichment

Investing in facilities and services that contribute to culturally diverse, multi-generational opportunities for life long learning and leisure, cultural and artistic experiences.

Customer-Driven Government

Investing in employees, systems and practices to support the delivery of high quality, efficient, and cost-effective services that the community wants and needs.

Key Initiatives/Goals

What follows are a list of priority goals and initiatives. This list is not comprehensive nor is it intended to be in priority order. These initiatives and goals vary from being general, programmatic goals to specific information systems initiatives. This list is designed to paint a picture of general, citywide emphasis and focus. This list should be used to provide context and background for discussions about IT goals, initiatives, and policies.

- Bring BART to San Jose
- Complete the Airport master building plan
- Build a new City Hall
- Develop strategies to reduce traffic congestion
- Complete construction of a new library in partnership with San Jose State University
- Implement a 24 x 7 Customer Service Call Center before the Mayor's next "State of the City" address
- Continue Investing in Results performance measurement initiative with a goal of implementing performance-based budgeting
- Become one of the best-managed cities in the country
- Become the most teacher-friendly city in California by providing housing opportunities and low-interest loans to teachers
- Develop 1000 new homes in and around downtown in the next 12 months
- Finance 6200 new housing units in the City in the next 5 years
- Keep flow into South Bay at less than 120 million gallons/day
- Achieve 50% target for recyclable waste by December 2000
- Complete Civil Service reform by modifying the classification/compensation system and reducing the number of classifications from 900 to 200
- Create an Information Technology Planning Board
- Build a new Integrated Development and Tracking System (IDTS) to automate development and permitting
- Design and build a new Financial Management System (FMS)
- Upgrade and enhance computer-aided dispatch systems for Police and Fire
- Expand number of Police Department remote locations (e.g. "storefront" or precinct), Fire Department stations, and Library branches

IT MANAGEMENT VISION AND AGENDA

In the information economy, successful organizations integrate information technology and business strategies in order to maximize information value, attain business objectives and improve service delivery. The effective use of information technology is critical to the overall performance of an organization. Simply put, information technology is so critical to the success of enterprises, it is an issue that cannot be relegated solely to management or IT specialists, but must instead receive the focused attention of both. This chapter outlines the City of San Jose's agenda for maximizing the value of information technology investments and promoting effective information management practices.

IT Management Vision

The City of San Jose is a world-class government organization that effectively uses information technology to support city operations and delivery of services. The City's investments in and reliance on technology are consistent with its namesake-the *Capital of Silicon Valley*.

The City of San Jose uses a mix of communication and information technologies to provide citizens with many basic services in a friendly, efficient, and accessible manner. The public has easy access to the necessary technologies so that cost, time or location does not limit their interactions with government departments and officials. Information systems and communications technologies are used within San Jose government to improve the quality of service, increase productivity, achieve efficiencies in the delivery of services, and assess progress towards performance goals. The City accomplishes these outcomes through the prudent investment in and shared use of electronic technologies.

To achieve this vision and to support the continued improvement in services provided to the citizens of San Jose, public officials will promote collaborations and partnerships. The practices that will help achieve this vision are:

- Increase public access to government information by making frequently requested government information available online 24 hours a day, 7 days a week, 365 days a year;
- Acquire technology that is adaptable and interoperable;
- Foster partnerships among city departments, other governments, and private sector companies;
- Select open architecture solutions that accommodate data sharing and the interconnection of technologies;
- Make information easily accessible through shared networks;
- Reduce transaction times for those using government services;
- Aggressively look for opportunities to leverage technology investments to benefit multiple departments and its citizens;
- Design and procure systems that maximize the use of current information and technology;

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- Make appropriate investments in training for the City's information technology support staff and end users; and
 - Implement strategies to aggressively recruit and retain information technology professionals.

IT Governance

IT governance promotes operational success by establishing a structure that guides the deployment of integrated, reliable, and secure technologies. IT governance is generally embodied through a combination of IT councils or steering committees, technology policies and standards, and organizational accountabilities. An effective IT governance structure should help:

- build a vision of the organization's IT requirements including the necessary applications, data, systems, network and end-user architectures;
- select and integrate the most appropriate technology platforms and standards to meet both current and future needs;
- select and implement the right methods and overall approach to systems development to improve productivity and quality;
- introduce and sustain a strong "customer service" attitude throughout the IT function;
- establish the financial, technical and management policies necessary to manage the IT function; and
- build constructive team relationships with clear roles and responsibilities between IT professionals, users and business management.

The City of San Jose has recently initiated a formalized IT governance structure by creating the Information Technology Planning Board (ITPB) and commissioning the development of this IT Masterplan. These activities in and of themselves do not constitute an IT governance structure. However, the ITPB and this plan are foundational components of the IT governance function for the City of San Jose. The role of the ITPB is described in more detail in its Charter (see Appendix A).

Since information is a strategic resource that supports the City's goals and objectives, it must be managed at a strategic level to effectively provide the services City managers, staff, and customers increasingly depend upon. To develop an effective governance and organizational structure for IT, several critical success factors should be considered.

Focus on Customers

The new organization and governance structure must focus on the IT requirements of the City that will best serve the goals of supporting policy priorities, core service delivery, and performance measurement. This focus must address internal and external customer needs.

Effective Feedback

The success of IT services can only be judged by the customers of those services. Success at a strategic level must be judged by those responsible for the strategic leadership of the City. The IT Masterplan should be continuously updated and improved in order to adapt to continuing changes in technology and customer needs. Although standard benchmark measures of service can provide objective feedback, these should be supplemented with feedback from ITD, departments, and the customers of City services.

Focus on Continuous Improvement

Continuous improvement of service delivery and service levels is essential. The IT organization must develop processes to measure service levels and find ways of improving services. The leadership of the IT organization must be charged with the responsibility for getting the job done right, and continually finding ways to do the job better.

Effective Planning

Effective planning should include participation by City management, ITD management and staff, and departmental staff from across the enterprise. IT plans should be developed within the individual departments and presented to the ITPB for review and approval. Departmental IT plans should show appropriate linkages to and support of the City's IT Masterplan.

Distributed Support, Centrally Coordinated

The IT organization must strike an appropriate, cost effective balance between distributed and centralized management of IT service delivery. Departmental IT support should focus on the success of the department being served, be responsive to local user needs, and yet accountable to support and maintain the City's IT policies, standards, and values. ITD should coordinate the delivery of distributed support, ensure economies of scale (e.g., in the acquisition of training and standard software and hardware) are available to all units, retain negotiating power with vendors, and determine minimum standards to deliver a consistent quality of service.

Effective Financing and Cost Control

IT technologies continue to evolve rapidly, resulting in continuous improvement in efficiencies and economics. This requires some flexibility in budgeting and financing strategies. The City should seek to improve IT lifecycle cost estimates, IT project cost management and accountability, and coordinated IT investing.

Appropriate Advisory Structure

IT advisory structures vary with the particular organizational model used and tend to reflect the culture of each particular institution. The City of San Jose has implemented the ITPB. The ITPB is made up of representatives from most of the larger or information-dependent departments within city government. The effectiveness, membership, responsibilities, and authorities of the ITPB should be reviewed on a regular basis. Appropriate adjustments should be made over time to ensure that the ITPB is fulfilling its purpose.

IT Management Principles

A principle, according to Noah Webster, is *a law or fact of nature underlying the working of an artificial device*. Principles are most effective if they are formulated as fundamental laws of nature; that fewer are better. The challenge is to come up with a few well-crafted "truths" that guide the behavior of The City of San Jose and its departments in buying, managing, and using information and technology.

GENERAL PRINCIPLES

The City of San Jose's information technology systems will be designed and coordinated to:

- Continually improve the City's key functions and services;
- Share information easily through all levels of government and with its partners;
- Enable departments to work together, aggregating resources where possible to meet all needs, including community needs whenever feasible;
- Accommodate and improve citizen access to public officials and employees, information, and services.

TECHNOLOGY PRINCIPLES

- Technology investments should improve service delivery and/or staff effectiveness.
- Information technology purchases will conform to City technology standards.
- The City's investments in and use of technology should exemplify our position as the *Capital of Silicon Valley*.
- Technology should be shared to the greatest extent possible.
- The technology products we acquire should err on the side of usefulness to our workers or customers rather than their attractiveness to technical specialists.
- The technology products we acquire should err on the side of simplicity--for our employees and customers to use, and for our IT staff to support.

DATA PRINCIPLES

- Our corporate and intergovernmental data must be current, accurate, easily accessible, and secure from unauthorized access and accidental loss.
- Enterprise data will be accurately captured one time and as close to its source as possible. It should be printed only when necessary.
- Our enterprise or intergovernmental data will be cataloged, named and defined, and linked/shared so that data from any function, unit, or individual will be available, subject to the restrictions of confidentiality, to any user who can demonstrate a need for it.
- All data which is stored in a machine-readable form within departments shall be classified into one of the following categories for management purposes: Enterprise Data (data that multiple departments within our city may need to conduct their business), Departmental Data (data that multiple individuals or groups within a department may need to conduct their business), and Personal Data (data of interest only to that individual)

APPLICATION PRINCIPLES

- **Sharing:** There are certain business applications and technologies that are common across divisions--inventory, budgeting, accounting, billing systems, cashiering etc. These should be commonly developed and shared among departments. Access to these systems will be provided on a "local" level so as to avoid redundant effort by our staff and our customers.
- **Buy versus build:** Where possible, the City will purchase pre-packaged, "off-the-shelf" software applications rather than building systems from scratch. Customization of pre-packaged software should, to the greatest extent possible, be minimized in order to reduce costs.
- **Minimize complexity and leverage the proficiency of our people** by selecting, promoting, and supporting a limited number of (translatable/convertible) products for common commercial applications (e.g. word processing, spreadsheets, databases, e-mail).
- We will encourage and invest in applications that reduce the cost to corporate citizens and individuals doing business with our city.

PEOPLE PRINCIPLES

- We will design information and communication systems that provide our customers a single point of entry into our organization so they can deal with us simply and predictably.
- Employees are such an important "system" asset that they will receive the training necessary to achieve proficiency in the use of technology or information systems. No investment will be made in technology without a parallel investment in training so our people can use that technology effectively.
- **Recruitment and retention:** The City recognizes the value of our IT support staff. Vacant IT support positions impact operations and are costly to fill. We will recruit and retain qualified information technology professionals by offering competitive compensation, appropriate classifications, continuous technical education programs, and project management training.

ORGANIZATION PRINCIPLES

- Our Information Technology Planning Board (ITPB) sets the corporate agenda for technology and information management, and recommends priorities and resources for accomplishing the City's technology and information management business.
- Each Department administrator sets his or her "local" agenda for technology and information management, but submits it to the ITPB for advice and consent. In this way we will all be aware of opportunities to leverage IT investments and better serve our customers.

ASSESSMENT OF CURRENT INFORMATION MANAGEMENT ISSUES

The success of any strategic IT Masterplan is dependent on how well it is linked to and supports enterprise business goals and objectives. Likewise, senior executives within the enterprise have to be engaged in the process and committed to supporting the outcomes of the planning efforts. As part of this planning process, senior managers were asked to identify programmatic issues, new opportunities, and business drivers that have to be address in order to keep programs and services effective. In short, this chapter is an attempt to assess the “heartbeat” of the City as it pertains to its information management practices and principles. Only when these issues, opportunities, and drivers are clearly understood that relevant IT goals and strategies can be developed that support the enterprise and what it is trying to accomplish.

Summary of Recurring Themes/Issues

After conducting several interviews with City leaders and reviewing numerous documents and plans, the following recurring cross-departmental themes emerged. While this is not intended to be a comprehensive list nor a detailed assessment of all of the important issues that the City is facing, most would agree that these issues need to be addressed if the City is going to realize its vision of excellence. These themes/issues should serve as a backdrop and context for discussions about IT goals and initiatives.

Departmental and Customer Communication

Communication is important in any business. The City of San Jose’s offices and business units are geographically dispersed. This kind of locational fragmentation makes communication difficult. Departments rely heavily on phones, pagers, radios, and electronic mail (email) systems for inter- and intra-departmental communication. These systems must be reliable and supported with adequate staffing. If the City does not excel in its internal communication, program performance will suffer and external communication with citizens will be compromised.

Inter- and intra-departmental communication needs to be a priority. Staff will perform at higher levels if everyone knows what the goals and objectives are. Likewise, communication between departments is key if the City is going to effectively identify opportunities for partnering and leveraging key investments.

The City is also looking to improve its communication with the citizens of San Jose. City leaders recognize that technology such as new dispatch systems, cable TV access, a telephone call center, and the Internet can improve City operations and the way that the City interacts with its customers and constituencies.

Individual and Corporate Leadership

The City values individual and collective leadership. Those who were interviewed are enthusiastic about the current leadership, citywide direction, and performance initiatives. There is a clear recognition that the City must provide visionary leadership if it is going to address current and future issues.

Both the Task 2 interviews and the Information Technology Department (ITD) assessment suggest that City departments are looking to ITD for leadership as it pertains to IT vision, hardware/software standards, purchasing decisions, and IT project management. Most recognize that ITD has limited staff and expertise but they also believe that IT leadership is an enterprise role unique to ITD.

Customer-Focused Investments

City departments have spent a significant amount of time identifying their customers and core services. The result has been a renewed customer focus. Customers, whether internal or external, will ultimately be the ones that validate success for any given business function within the City. New projects, new initiatives, and new performance measures should be evaluated, in part, based on how the customer relationship is improved.

City leaders continue to explore new ways to improve customer interaction. City management is looking for ways to change “the face of city government” for the citizens of San Jose. Improving services or making services more easily available to citizens will continue to be a key value in prioritizing new projects and investments.

Systems Integration and Partnerships

City leadership recognizes that because of limited financial and human resources, departments can ill-afford to work independently. The Task 2 interviews and the ITD assessment revealed that many are frustrated by lack of systems and data integration. The issues that the City is facing are becoming more complex and the information needs often cross departmental and “systems” boundaries. City departments must work together to coordinate systems and projects to the greatest extent possible.

Priority must be given to those projects and initiatives that benefit more than one department or that leverage external resources. Opportunities to partner with external entities, such as the cooperative library project with San Jose State University, must also be given priority.

Program and Systems Excellence and Accountability

The Investing in Results (IIR) initiative is driving City departments to refine their mission, values, core services, and performance measurements. The overall goals are organizational change and operational improvements. While there is a genuine enthusiasm about the IIR efforts, several managers who were interviewed for Task 2 noted that the City’s current information systems won’t adequately support the level of detail necessary to track the new or refined performance measures or support performance-based budgeting. Investments will have to be made to update or replace departmental and enterprise systems.

The Task 2 interviews and the ITD assessment also suggest that accountability for IT systems development, implementation, and maintenance is not clear. Accountability tends to vary from project to project. Most agreed that roles and responsibilities for IT systems need to be established and communicated.

IT Infrastructure and Support

There is a consensus among leadership that the current systems and support infrastructure are not adequate to support the City's goals and objectives. As the *Capital of Silicon Valley*, there is an acknowledgement that the City's use of technology and information systems should be much more advanced than it is today. Most would agree that investments in IT have not been a priority. But there is also a growing realization that new technologies and up-to-date information systems are key in enabling the City to improving service delivery with limited resources.

Most departments do not currently have an adequate level of IT staff to support their system. Because of this, existing IT staff are often relegated to a reactive "fire fighting" mode rather than a proactive enabler of business improvement and support. If the City wants to maximize the value of its IT investments, it will have to provide additional IT support resources.

IT Recruitment and Retention

This issue is closely related to the previous one. The City, like most government organizations, has had a difficult time recruiting and retaining qualified IT support staff. This problem is especially difficult in Silicon Valley where the demand for IT talent is at an all time high. This has resulted in expensive and time-consuming recruitment efforts, high turnover, inadequate support for some existing systems, and use of expensive contractors for support.

Given that the demand for IT staff is expected to remain high for the foreseeable future, the City must develop strategies to ensure an adequate supply of IT expertise to support its systems.

SWOT (Strengths, Weaknesses, Opportunities, Threats) Assessment

In many ways, the information management issues facing the City of San Jose are similar to many other government and non-profit organizations-the need for timely, accurate, and integrated information is increasing, IT recruitment and retention is becoming increasingly difficult, IT investment dollars are limited and often fragmented, and citizens are increasingly expecting convenient and integrated services.

As part of IT Masterplan effort, numerous workshops were conducted, surveys taken, and best IT practices were studied. This was done primarily to identify opportunities to improve the management and delivery of information and communication services. The following SWOT assessment is a high level summary of the findings and observations to date. The information is not intended to be a comprehensive list of all of the information management strengths, weaknesses, opportunities, and threats facing the City nor are the findings in priority order.

As with any kind of assessment that highlights either strengths or weaknesses, the information could be taken out of context or used inappropriately unless it is clearly understood how these categories should be used. The following description for each SWOT category is provided to clarify how these findings were derived and how they should be used.

Strengths refer to those attributes of an organization that have and will enable it to effectively use and manage its information resources. These are areas where the City excels when compared to other similar organizations. It is important to recognize and understand what organizational strengths are in place so that the City can keep these areas strong and build upon them as needed.

Weaknesses describe those aspects of the organization that, unless attended to, will compromise the City's ability to maximize its IT investments and achieve the IT management vision that was previously described. Weaknesses should not be viewed as an indictment against a specific organization or process. Rather, the City has used these findings to identify key initiatives that address the weaknesses described.

Opportunities described in this assessment are those activities that will help the City address some of the weaknesses that were previously described and make the best use of its information resources. These opportunities should be referred to as strategies, key initiatives, and specific workplans are developed in the coming months.

Threats are those internal and external issues that have the potential to derail the City's attempt implement the IT Masterplan and improve its information practices. These threats should be taken seriously and constantly monitored. Someone in the organization should be tasked with keeping these issues "on the radar screen" of the ITPB.

All the information in the SWOT assessment will be used as a backdrop for ongoing planning activities and as a catalyst for candid discussions about improving service and information delivery.

Strengths

Information Technology Planning Board (ITPB)-The creation of the ITPB and the active participation of senior management has set the stage for reforming the ways that the City uses and manages its information resources. The Board has the right representation and the participants have been actively engaged. Discussions at the Board meeting have dealt with strategic issues that cut across departmental boundaries. The ITPB has served as a focal point for preliminary discussions on developing an E-Government strategy for the City. The ITPB will continue to be the catalyst for changing IT-related management and business practices within city government.

Investing in Results Initiative (IIR)-The IIR initiative has helped City departments focus appropriately on their core services and performance measures. Understanding core services and performance measures is vital in determining ways to improve and optimize the use and delivery of information services. IT strategies can be linked to specific areas of service delivery or performance measurement. The development of strategic IT initiatives has and should continue to leverage the good work being produced as part of the IIR initiative.

Information Technology Masterplan Effort-The City's previous IT plan, the *Computer Systems Masterplan*, was developed in 1994 and updated in 1996. It should be noted that this plan produced tangible benefits for the City. However, with the rapid pace of technological change and the ongoing investments in IT systems, the City can ill-afford to go four years between planning efforts. Interviews conducted as part of the ITD assessment identified multi-departmental support for the development of an enterprise IT strategy. The City's decision to launch this IT Masterplan effort underscores a commitment to revisit, and as necessary, change information management practices within city government.

Executive Leadership-There is an uncommon and commendable level of support for reforming/refining IT management and investment practices among the City's senior managers. This level of support and involvement places the City of San Jose ahead of many cities that have undertaken IT planning efforts. It is not uncommon in many government organizations that senior management simply reviews and signs off on a final plan developed either by the IT organization and/or mid-management. From the beginning, San Jose's senior management team has been actively engaged in identifying strategies and opportunities to reform the City's information management practices.

Willingness to Change Status Quo-A critical success factor in any planning initiative is a sincere willingness to, as necessary, abandon the status quo. The City of San Jose has demonstrated time and again a willingness to rethink traditional business practices and approaches. The ITD Assessment effort identified strong support for change from within ITD and the departments. Current City management appears ready to embrace new and innovative ways to invest in, manage, and deliver information resources. As the City contemplates service delivery in the Year 2000 and beyond, there is a clear understanding that IT management and investment practices will have to change to accommodate citizen expectations and service delivery needs in the coming years.

Weaknesses

Unknown IT Budget-How much does the City spend annually on its IT resources (e.g. hardware, software, staff, training, contracts)? This question cannot be readily answered. Someone has said, "If you don't know what you have and how much it costs, you're not managing it." While this problem is not unique to the City of San Jose, it does suggest the need to identify ways to capture IT-related budget and expenditure information throughout all departments. When the IT budget and spending patterns are clearly understood, the City can begin to identify opportunities to better leverage its IT investments.

Fragmented IT Investments-To date, investments in IT systems and projects have not been prioritized or optimized. Apart from having ITD try to prioritize annual IT-related budget requests, coordination has occurred on an ad hoc and informal basis. Like many government organizations, there are "haves" and "have nots" within the City of San Jose. The departments that have access to non-general fund revenues have been able to invest more readily in newer technologies. Lack of coordination for major IT systems development can lead to redundant efforts, poor integration, or system interfaces that are costly to develop and maintain. Until the development of the ITPB, there was no group with the authority to identify opportunities to redirect/refine departmental IT investments.

Lack of Formal IT Governance-IT governance promotes operational success by establishing a structure that guides the deployment of integrated, cost-effective, reliable, and secure technologies. To date, the City's IT governance structure has been informal and inadequate. With annual investments ranging from \$30 - \$40M for hardware, software, IT staff, contractors, and maintenance agreements, the City must develop appropriate policies, standards, and accountabilities to maximize the investment in these information resources. The development of the ITPB and the IT Masterplan are good first steps in developing an appropriate IT governance structure for the City.

Dated or Nonexistent IT Policies, Standards, and Guidelines-The previous *Computer Systems Masterplan* identified some appropriate hardware and software standards. These standards have not been updated. The City's current IT standards, policies, and guidelines are informal and not widely understood. A concerted effort needs to be made to establish and maintain an appropriate set of technology standards and related information management policies and guidelines.

IT Recruitment and Retention-There is a critical shortage of IT professionals nationwide. Recruitment and retention of IT development and support staff is especially difficult for government organizations that can't compete with the private sector. This problem is especially pronounced in the Silicon Valley where the explosion of private sector technology companies has drained an already limited IT talent pool. The cost of living in the Silicon Valley has also made it difficult for the City to recruit IT professionals from out of the area. The shortage of talent hinders the City's ability to develop and adequately support its current and planned information systems.

Limited IT Training Budget-Historically, training for IT support staff and end users has been insufficient and uneven. Some departments with adequate resources have funded training for users and ITD support staff while others have been unable to do so. Insufficient or uneven IT training can produce:

- Delayed or deficient IT support
- Morale problems
- Inability to adequately support new technologies
- Over-reliance on contractors
- Increased IT support calls
- End-user frustration.

While there has been some improvement in the overall IT training budget in recent years, there will need to be adequate and ongoing IT training opportunities if the City is going to maximize the value of its IT investments.

Over Reliance on Contractors-The difficulty in recruiting IT support staff have resulted in having to hire expensive contractors to support key IT functions within the department. In some cases, even contracted resources with appropriate skill levels have been difficult to find. For some key IT development efforts, the City's has required extensive customization to the base software package to minimize operational changes. This has resulted in escalating systems development costs, extended reliance on contractors, and expensive upgrades.

Informal IT Project Management and Accountabilities-The roles and responsibilities for management of major IT projects is not consistent. Some projects are managed by ITD, some are managed by departmental staff, and some are managed out of the City Manager's office. The City has not adopted a consistent systems development or project management methodology. The City has made limited use of project management training and tools. Apart from occasional reports to the Council Budget and IT Committee, there is no centralized project portfolio or management function that monitors project status, risks, and budgets. This is not to say that these activities don't occur, only that the function is informal and limited in scope.

Current Systems May Not Support Business Objectives-Task 2 identified several Policy Priority Areas and corresponding Key Initiatives/Goals. In many cases, the City will require access to integrated information to address these priorities and goals. Interviews conducted as part of the ITD Assessment and IT Masterplan projects revealed that as the *Capital of Silicon Valley*, the City's use of technology and information systems should be more advanced than it is today. Most agreed that investments in IT have not been a priority. But there is also a growing realization that new technologies and up-to-date information systems are key in enabling the City to improve service delivery with limited resources.

Opportunities

Formalize IT Governance-The creation of the ITPB and the development of the IT Masterplan provide the foundation on which to build a formal IT Governance structure within the City. This structure should provide a framework upon which IT investment priorities and decisions are made. An effective IT governance structure should incorporate the ITPB charter, the IT Masterplan, appropriate standards, policies, and guidelines, clear lines of accountabilities and reporting relationships, and appropriate systems development and project management methodologies. These framework pieces should be established with an understanding and awareness of the City's current and future information management needs.

Public/Private Partnerships-San Jose's namesake is the *Capital of Silicon Valley*. As such, there should be ample opportunities to develop strategic relationships and partnerships with private sector technology companies within the region. Private sector companies have been known to share talent, fund pieces of certain initiatives, or provide IT- and communications-related goods and services at substantial discounts. Likewise, formal relationships or partnerships with other regional local governments and public institutions could produce a sharing of IT-related resources, costs, and expertise. MTP believes that the City could benefit by assigning someone the responsibility of mining potential public and private partnerships. The ITPB is an example of this in that three of the Board members are from the private sector.

Realignment of Existing IT Resources-In Task 5 of the ITD Assessment, one of the recommended priorities was to "Integrate 'Like' IT Functions Throughout the City." Integration of similar IT functions is critical in maintaining consistency and leveraging knowledge in specialized IT skill areas. Currently, IT resources are either seen as "centralized - ITD" or "decentralized - Department resident". The City should explore strategies that will enable stronger integration of all IT functions, regardless of their physical location. Strategies to be considered should include the following:

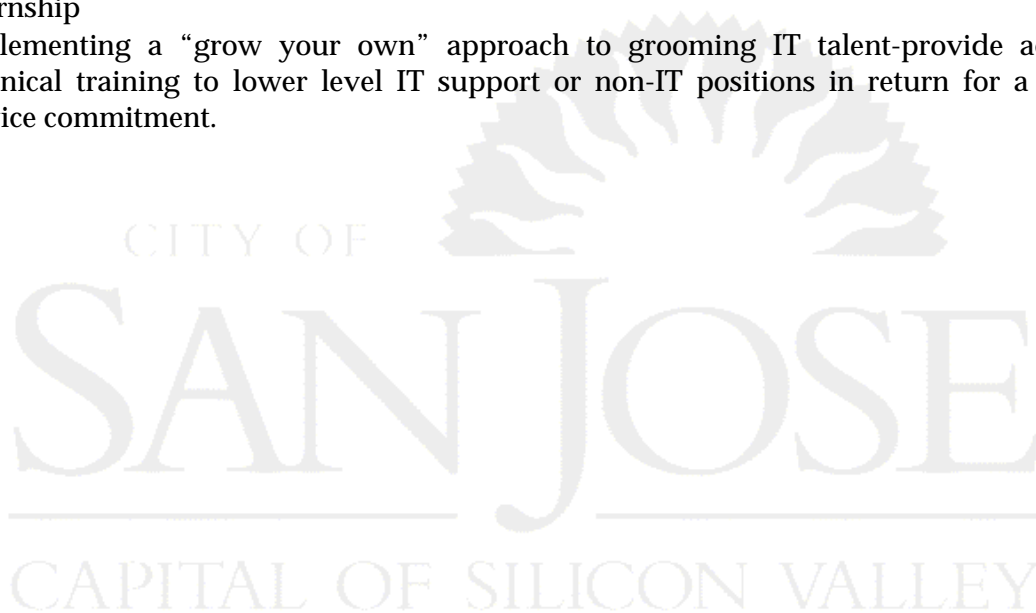
- Help desk/call center functions.
- Network support functions.
- Data management functions.
- Applications development and support.
- Expand and integrate the use of the World Wide Web. Identify management roles and responsibilities to keep the content uniform and up-to-date.

Formalize Project Management Responsibilities and Training-The City has and will continue to invest significant time, energy, and money in IT projects. IT Projects, by their very nature, are high risk. Effective management and appropriate project structure are critical to managing risk and ensuring project success. As many organizations have learned, just because someone is a good program manager or competent IT professional, they don't necessarily have the skills and competencies to manage projects effectively. The City should identify an appropriate project management training program and select key individuals to send to training. These trained project managers must then have the appropriate tools and authorities in place when managing projects. The City should also identify a consistent structure (e.g. executive sponsor, project

manager, project partners, support roles, reporting requirements) and methodology that all IT projects adhere to during planning, development, implementation, and maintenance.

IT and End-User Training-In order to maximize the value of IT investments, organizations must make a corresponding and appropriate investment in IT technical and end user training. In many cases, the City cannot afford to hire IT professionals or end users with all of the required knowledge, skills, and abilities to come in and “hit the ground running.” Training is essential. Training should be prioritized, focused, and budgeted appropriately. The City could benefit by:

- Implementing an IT training taskforce
- Creating IT training coordinators for technical support staff and end users
- Establishing price and service-level agreements with firms that provide classroom and computer-based training
- Partnering with local educational institutions to expand opportunities for IT-related internship
- Implementing a “grow your own” approach to grooming IT talent-provide advanced technical training to lower level IT support or non-IT positions in return for a time-in-service commitment.



Threats

Turf Issues-As previously mentioned, there are “haves” and “have nots” among the various City departments. It’s not uncommon for the “haves” to feel like they’re prone to “lose” while the “have nots” stand to gain the most. This issue can be compounded further by concerns about loss of control (data, systems, etc.), departmental squabbles, and the potential negative impacts to service delivery if system resources are shared. The fact remains that there will not be enough resources available for any one department to “go it alone.” Cooperation is not longer just a good idea, it is a business imperative. Senior management must share a common vision and set of principles and be united in their resolve to seize opportunities to make the most of the City’s IT investment opportunities. This shared vision and commitment must be communicated to staff and staff must be held accountable to support enterprise IT management principles.

Resistance to Change-Change challenges any organization. The City of San Jose is no exception. Fundamental improvement in information management and investment practices can only be realized if habits, attitudes, work practices, and accountabilities change accordingly. Many organizations have started strong down the path to information management reform only to give up and take the easy road of the status quo (e.g. not partnering, limited communications, single function and stand-alone applications). Change is difficult. If the City is going to be successful, it must embrace, champion, expect, and reward those who are willing to change.

Ongoing Competition for IT Professionals-IT support professionals enable the City to deploy and effectively manage its IT infrastructure. The City’s ability to recruit and retain IT staff will determine how well it can support its installed base of technologies and whether it can take advantage of emerging technologies. The forecast demand for IT talent remains high. The City must develop innovative strategies to recruit, retain, and retrain IT support staff. Investments in new technologies must include a corresponding investment in staffing and training. For certain IT support disciplines where City recruiting efforts consistently fail (Oracle programming, database administrators, network administrators), the City must either develop an in-house training program or negotiate price agreements with providers of those services.

Unwillingness to Invest-The interviews conducted as part of the ITD Assessment and IT Masterplan show that many feel IT investing has not been a priority. Further, most departments do not have an adequate level of technical support to realize the full potential of the installed systems. Because of this, IT staff often spend their times reacting to problems rather than being an enabler of improved business functions and services. The City will have to be willing to make appropriate investments in IT support staff, technical and end user training, and computing and communication systems. Failure to invest appropriately will hinder the City’s ability to deploy and support new means of service delivery using existing and emerging technologies.

ITPB Loss of Focus-The ITPB was previously listed as a “Strength” early in this report. The ITPB has a solid charter, appropriate representation (executive management), and is appropriately engaged in discussions of strategic importance. The ITPB is the business entity that will identify needed changes in City information management practices and enable progress toward the IT Masterplan goals and strategies. Historically, IT planning boards, steering committees, or councils often start strong with a lot of enthusiasm and passion for change. Over time, however, the focus can shift from strategic to tactical. The emphasis becomes review and approve rather than “set the course” and enable. Agendas become a show and tell of projects rather than spirited dialogue of strategic issues. One by one, board members delegate their board responsibilities to lower level managers and disengage from the process. This is the beginning of the end for these boards. The City should monitor these issues carefully and make the necessary corrections over time.



STRATEGIC IT INITIATIVES

The nature of this plan is different from most. Many IT planning efforts produce a detailed list of IT-related projects and related budgets. While there is some merit to identifying and prioritizing projects, the ITPB realized early on that a simple list of prioritized projects would not address some of the fundamental information management issues that the City of San Jose is dealing with. This plan attempts to articulate a framework for how the City should invest in and manage its information resources.

The following list of strategic initiatives was compiled from a series of meetings with the ITPB, discussions with senior management and ITD staff, and recommended priorities from the IT Department Assessment project. This section of the plan is intended to serve as a roadmap for further action. The initiatives are not in priority order. Work on some of the initiatives is already underway because the ITPB realized that certain initiatives could not wait until the plan was completed to begin.

Create an IT Planning Board and Develop an IT Masterplan

This strategy is currently being implemented. The ITPB has been created and its charter has been finalized. The development of this IT Masterplan is one of the ITPB's first outcomes.

Develop Departmental IT Plans

Each department should develop individual IT plans that link to the City's IT Masterplan. Departmental IT plans should provide a tactical view of how their IT projects and investments support the enterprise strategies and workplans identified in the IT Masterplan. Departmental IT plans will be presented to and reviewed by the ITPB. ITD will work with the ITPB to develop a template for departmental IT plans.

Develop an IT Communications Plan

Effective communication enables effective service delivery. ITD will develop strategies to improve communications within ITD, with customers of ITD, and with departments that don't currently have ITD representation. The ITPB will take a more active role in communicating relevant information management issues to the City Manager's office, the Mayor, and the Council. Strategies include:

- Presentation to Senior Staff on the role of the ITPB. Provide management team with regular updates on ITPB activities and decisions.
- Use the ITPB to identify enterprise opportunities and communicate project status, new opportunities, and issues.
- Use ITPB subcommittees to address specific citywide IT issues.
- Expand the use of the City's Intranet.
- Clearly identify the roles and responsibilities of an ITD liaison and assign one to each department.
- CITD will conduct regular surveys/interviews to assess customer satisfaction and needs and present the findings to the ITPB.

Improve IT Staff and End-User Training

If the City is going to build and sustain a high performance workforce, relevant and up-to-date training is mandatory. Timely and appropriate training will help the City maximize the value of its IT investments. IT professionals need training to effectively support the City's information systems and end-users need appropriate training to take advantage of the full range of system capabilities. Investments in new systems and software should not be made without a commensurate investment in user training. ITD will work with the Human Resources Department to develop an overall approach to meeting the IT training needs of the City. IT support and user training strategies include:

- Identify necessary training and skills required for each core service area with ITD. The focus should be on developing the necessary capacities to support the core services.
- Leverage existing resources to the greatest extent possible, regardless of where the resources are located or what part of the organization they belong to.
- Require cross training among and between key IT support functions.
- Consider hosting (ITD and/or ITPB) periodic training sessions for management on relevant IT issues or principles.
- Explore cooperative training opportunities with private sector and other governments, and identify alternative training methods (e.g. sponsor in-house training for several staff, computer-based training).

Improve IT Staff Recruitment and Retention

Competition for qualified IT support staff is at an all-time high. The city has a difficult time competing with the private sector firms within Silicon Valley. Recruiting is costly and time consuming. In many cases, the inability to attract IT professionals results in having to hire expensive contract employees to provide some of the core services our departments depend upon. ITD will work with the Human Resources Department to identify ways to improve recruiting and retention of IT professionals. Recruitment and retention strategies include:

- Identify which technical areas that the City realistically can/cannot compete in and focus recruitment and retention accordingly.
- Work more closely with the local colleges and high schools to develop technical internships and partnerships.
- Participate in technical career fairs and expositions.
- Expand the use of the Internet to post jobs and solicit applications.
- Provide advanced technical training to lower level IT support or non-IT positions in return for a time-in-service commitment.
- Explore use of bonuses for performance, technical certifications, and special projects.
- Evaluate, and if necessary, refine IT job classifications and compensation.

Formalize Project Identification, Prioritization, and Management Methods

ITD will take a more proactive role in the planning, prioritization, and management of IT projects. ITD will work more closely with the departments during the planning and implementation of IT projects. ITD will work with the ITPB to define the role of ITD and formalize a process for IT project planning, prioritization, and implementation. Strategies that support this initiative include:

- Explore PMI (Project Management Institute) certification for key ITD departmental staff.

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- Research and adopt a formal systems development methodology for the City to use.
 - Develop project teams with appropriate user and ITD representation.
 - Refine the IT project prioritization process and get ITPB approval/endorsement.
 - Work with the ITPB to clarify roles, responsibilities, and “ownership” for IT-related projects.

Update Information Management Standards, Policies, and Guidelines

IT standards and policies help organizations reduce complexity in the IT environment and lower support costs. Although the City has had technology standards in the past, they have not been kept up-to-date. ITD will work with the departments and the ITPB to define a process for updating and communicating appropriate standards, policies, and guidelines. The ITPB will prioritize the development of needed standards, policies and guidelines and will appoint subcommittees to research needs and prepare draft language. The subcommittees will include ITD and departmental representation. Final recommendations will be reviewed and approved by the ITPB.

Integrate “Like” IT Functions Throughout the City

Integration of similar IT functions is critical in maintaining consistency and leveraging knowledge in specialized IT skill areas. Currently, IT resources are either seen as “centralized – ITD” or “decentralized – Department resident”. Strategies will be developed that enable stronger integration of ALL IT functions, regardless of their physical location. Initial integration studies will be developed for the following enterprise functions:

- Help desk/call center functions.
- Network support functions.
- Data management functions.
- Applications development and support.
- Internet/Intranet applications.

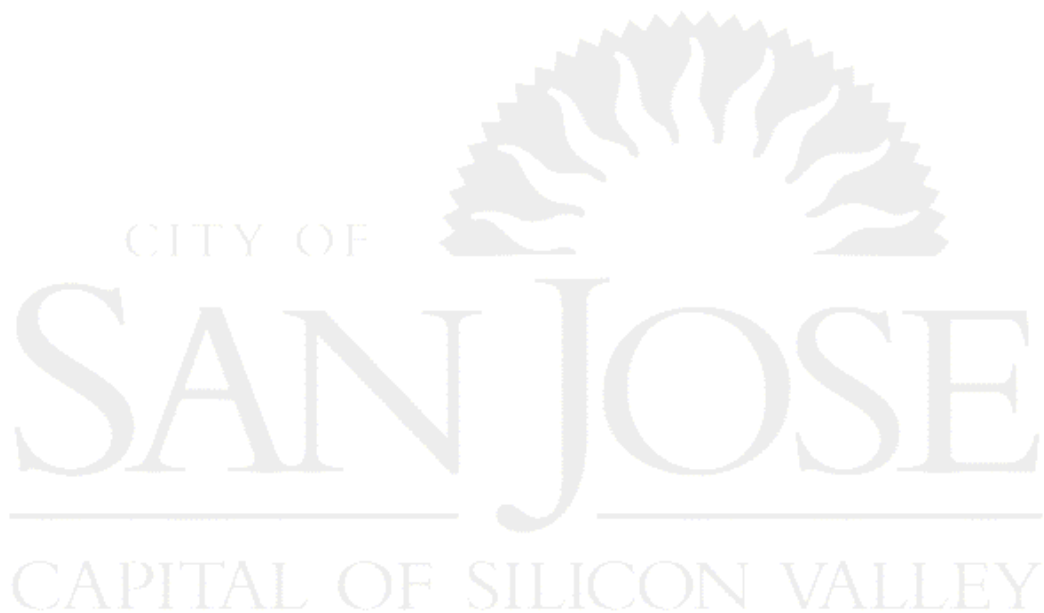
Develop IT Performance Measures and Service Level Agreements

Performance measures and service level agreements are powerful tools to measure and improve service delivery. The City is in the process of defining relevant performance measures for departmental core services. ITD has spent considerable time identifying their core services and developing related performance measures. Once these performance measures are finalized, ITD will develop/refine the necessary processes and tracking capabilities to monitor performance. ITD will regularly report their progress to customers and the ITPB. Performance measures will be used as a starting point to develop appropriate service level expectations and agreements with customers. Once service level agreements are established, ITD will monitor service levels and meet regularly with our customers to discuss.

Develop a City of San Jose Electronic Government (E-Government) Strategy

As the *Capitol of Silicon Valley*, the City is committed to using the Internet and web-based technologies to expand and improve services to citizens. The City of San Jose will strive to be a government so interconnected that everyone—businesspeople, private citizens and people within government—can easily access a wide range of information and services using readily available technologies. Several departments have identified web applications and web sites that they plan to deploy. Deployment of these applications will need to be coordinated and be

consistent with an overall framework for E-Government. The ITPB will oversee the development of an E-Government framework and will present an E-Government strategy to the City Council. The strategy will identify potential pilot projects, cost estimates, and timeframes for implementation. The ITPB will also review and coordinate departmental web site development to make sure the City has a coherent presence on the web. The City will use its existing technical infrastructure and systems to the greatest extent possible.



NEXT STEPS

This IT Masterplan has identified several key strategies that will help the City improve its information management practices and maximize the value of its information investments. This strategic plan, however, has limited value without an accompanying implementation plan that specifies key responsibilities, resources requirements, and schedules. As with any strategic planning effort, the development of the plan is only the first, and often, the easiest step. Implementation requires detailed work plans, accountability, funding, and persistence. If the City is going to implement the strategies outlined in this document, it must do the following.

1. Develop a marketing strategy to communicate this plan to City policymakers, management, and staff (e.g. staff meetings, Council presentation, City web site or Intranet).
2. For each strategic IT initiative, develop detailed implementation plans that identify:
 - Who has lead responsibility and who has support responsibility
 - Specific actions/steps
 - Schedules and timeframes
 - Resource requirements (FTE, system, funding, etc.)
 - Barriers to implementation
3. Present implementation plans and monthly progress reports the ITPB
4. Establish a process to revisit and refresh the IT Masterplan on a regular basis.

The ITPB will be responsible for driving the implementation of this plan. Members of the ITPB will have to stay actively engaged in promoting the information management principles and strategies described in the pages of this document. Moreover, if the City wants to reform and refine its information management practices, new technology initiatives must be evaluated in light of the framework and strategies identified in this plan.

Appendix A



CITY OF SAN JOSE

Information Technology Planning Board

Charter

Ensure enterprise-wide connectivity, compatibility and integration of information technology and telecommunications and the cost-effective provision of quality systems and services.

The Board will evaluate its charter in May 2000 for possible revisions. Thereafter, the Charter will be evaluated when the strategic master plan undergoes annual review.

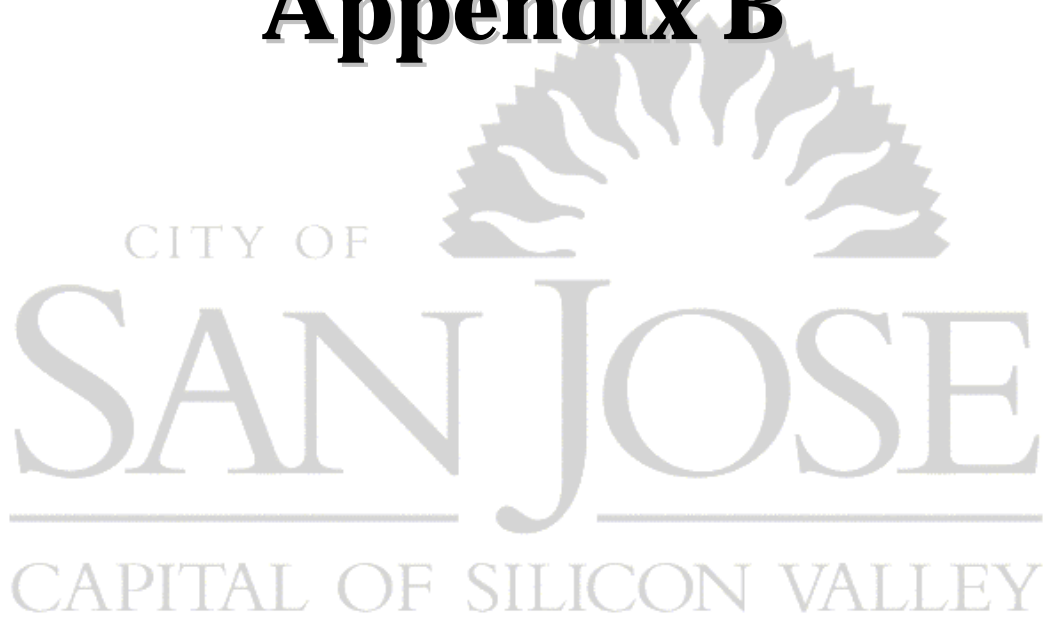
Power and Duties

- Develop, maintain, and advocate the Information Technology Strategic Master Plan;
- Establish and revise information technology guidelines, standards, and benchmark processes;
- Review and make recommendations to the City Manager regarding assignment of administration of major information technology projects;
- Review and make recommendations to the City Manager concerning all information technology budgets;
- Develop and oversee adherence to standards for security, confidentiality and protection of all data, information and telecommunication systems;
- Review and prioritize enterprise-wide information technology investments for the City Manager's review.

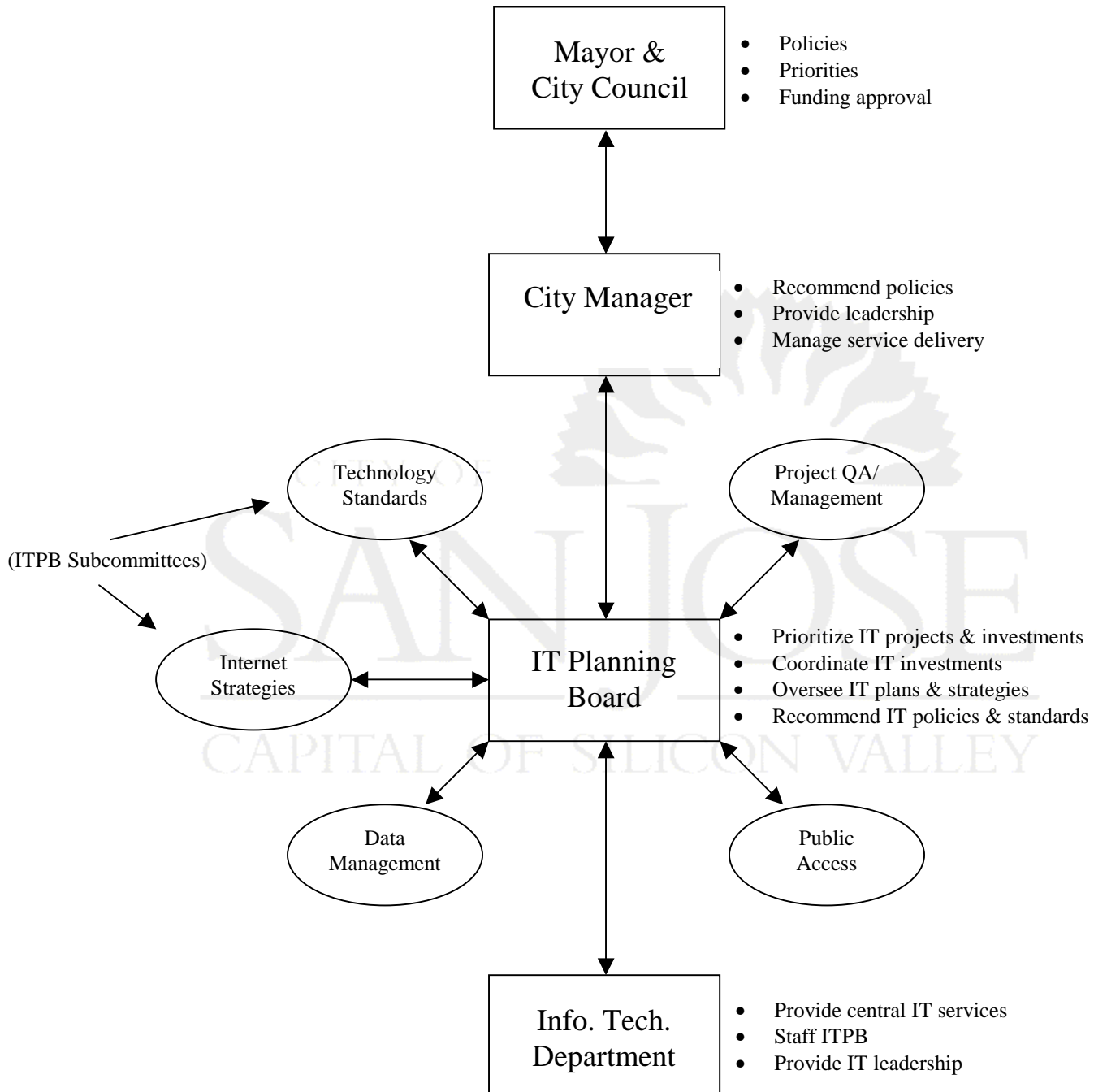
Information Technology Department's Role

- Assist in creating the strategic master plan and the annual review of the plan by the IT Planning Board;
- Assist in the development and revision of technology standards and guidelines for the IT Planning Board;
- Assist in the development and revision of applicable policies and procedures required for the efficient and effective utilization of information technology;
- Support the policies, procedures and direction established by the IT Planning Board;
- Coordinate and provide assistance for the IT Planning Board's review of major information technology projects and opportunities;
- Facilitate the exploration of current and emerging information technologies and provide forums where departments can benefit from this research;
- Review all departmental information technology initiatives that are outside of current standards and make recommendations to the IT Planning Board for their disposition;
- Partner with departments in the design of all information technology projects;
- Identify opportunities and strategies for integration of information technology systems.

Appendix B



IT Governance Organizational Structure



Appendix C



INFORMATION TECHNOLOGY DEPARTMENT (ITD)

ITD will play a key role in helping the City achieve its IT vision. ITD must not only provide quality information management services, it must provide ongoing IT leadership and direction for all City departments. Given the importance of ITD's role in helping the City fulfill the IT vision, it's important to understand and validate the Department's mission, core services, and performance measures.

This information was developed as part of the Investing in Results and the ITD Assessment initiatives that have been ongoing for the past several months.

Mission

To enable the service delivery of our customers through the integration of citywide technology resources.

Core Services

It is important for ITD and City management to understand ITD's core services. Clarification of core service areas will help ITD 1) focus limited resources on those functions and activities that cannot be compromised, and 2) provide a framework from which to discuss the appropriateness or inappropriateness of outsourcing certain activities.

Network and Communications Services

Enable the availability and relevancy of data, voice, and radio communications.

Technology Customer Support

Provide direct customer support and training for technology equipment and applications.

City-wide Data Management

Manage the City's data so that critical business processes remain operational.

Technology Strategic Planning

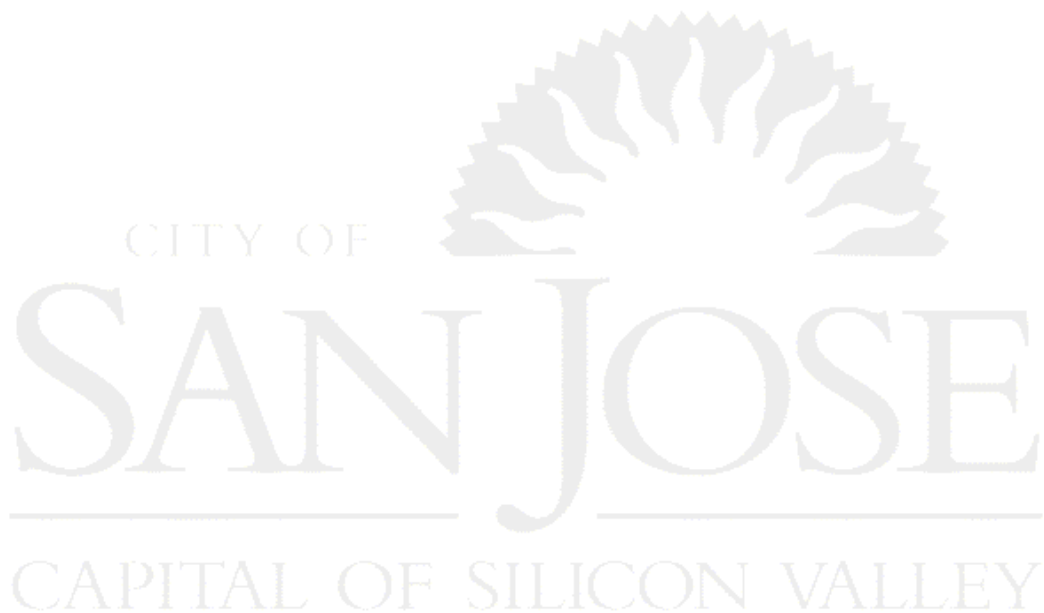
Ensure optimal resource utilization and technology investment across the city-wide organization.

Technology Solutions Consulting

Create and implement new technology solutions that maximize the delivery of City services.

Performance Measures

As part of the ITD Assessment and the Investing in Results effort, ITD staff and management were asked to define performance measures and opportunities for improving services provided. For each core service and operational service area, ITD will measure, where applicable, performance against cost, cycle time, quality, and customer satisfaction. Performance measures for the core services are included in the City's operating budget document. ITD is in the process of finalizing performance measures by operational service area. These measures will provide a useful starting point for subsequent discussions about Service Level Agreements.



Recommendations By Core Service Area

PEOPLE	PROCESS	STRUCTURE
Core Service Area: IT Planning		
<ul style="list-style-type: none"> Create a citywide IT leadership group that provides a method of communicating longer term IT goals. Plan for IT skill development – align with IT Masterplan. 	<ul style="list-style-type: none"> Prepare a citywide IT Masterplan – with its primary emphasis on Policy and Technology Direction. Prepare department specific IT Plans – which align/contribute to the citywide IT Master Plan. Development of citywide standards. Use of cost/utility analysis instead of strict ROI for Project effectiveness (include considerations of intangible benefits). 	<ul style="list-style-type: none"> There should be an IT board or committee in place, which has the responsibility and authority to approve IT department plans and citywide policy.
Core Service Area: IT Research & Development		
<ul style="list-style-type: none"> Information technology department must have a commitment to support the innovative use of information technology to improve services and operations. Staff must have the knowledge, skills and capabilities to identify how new technologies could be implemented or adopted to support the city's services and operations. 	<ul style="list-style-type: none"> Implement an aggressive training program, which will maintain an information technology skilled workforce. Develop technology partners in the form of user groups, technical staff from the various city departments, and information services providers to encourage collaborative research. Document research findings for the management decision making process. 	<ul style="list-style-type: none"> Formalize the process for evaluation and implementation of new technologies. Identify key staff in each service group responsible for the review, analysis, and recommendation. Make decisions and supporting data easily available to provide for dissemination of information and reduce redundancy of effort.
Core Service Area: IT Business Solutions Consulting		
<ul style="list-style-type: none"> Determine the number of staff needed to enable satisfactory response to customers. Develop a plan to attract and retain qualified and trained professionals. Establish IT support/liason in each department. 	<ul style="list-style-type: none"> Develop process to assess how satisfied all city departments are with current process and determine customer's desire for our services. 	<ul style="list-style-type: none"> Get more information from cities specific to consulting services. Establish a contract within each department to provide consulting services that would include scope of service and service level agreements.

PEOPLE	PROCESS	STRUCTURE
Core Service Area: IT Data Management		
<ul style="list-style-type: none"> Establish a minimum level of database expertise in the hiring process. Attract/recruit people with the required skill set. Provide formal and on-going training to keep skills current. Establish a policy of cross training. Use consultants to fill the gaps in technical expertise, ensure the transfer of skills from consultants to staff. 	<ul style="list-style-type: none"> Define the role of data management in the areas of development, implementation, and maintenance of systems. Actively participate in the conception, development and implementation of systems that the DBA team will be required to support. 	<ul style="list-style-type: none"> Develop a Corporate Data Management charter and communicate it to the organization. Establish and communicate database hardware and software standards, options should be limited and must work towards integration with existing systems. Provide adequate resources for identified mission-critical applications. Dedicate resources/ infrastructure for testing and deploying mission-critical applications. Establish performance measures and benchmarks. Identify corporate data and make it available for corporate use.
Core Service Area: IT Applications Development & Support		
<ul style="list-style-type: none"> IT to adopt an organizational structure for team participation in the application development and support process rather than at the application level. The level of staffing is adjusted to allow staff to cross train for application support and to acquire skills required to develop city applications. Conduct periodic strategic and tactical brainstorming sessions in application development and support. Conduct periodic project and service delivery meetings with staff and support departments. Conduct skills inventory. Prepare training plans. 	<ul style="list-style-type: none"> The IT board approves and prioritizes request for service, which become part of application development and support's ownership. IT application development and support adopt a standard, proven methodology for applies the system development life cycle standards and deliverables to all requests for service. 	<ul style="list-style-type: none"> IT application development and support resources report to the Director of IT and organize to align with city expectations for technology leadership across the enterprise. City applications implemented include an accountable IT project manager. City use alternative service delivery methods where IT resources are either not available or do not have required knowledge base. Adopt incentives (e.g. compensations, career development, benefits) to provide motivation to increase performance. Formalize service level agreements with departments and city management. Adopt team environment across application development and support.

PEOPLE	PROCESS	STRUCTURE
Core Service Area: IT Networks and Communications		
<ul style="list-style-type: none"> Invest in our employees: <ul style="list-style-type: none"> Ensure an adequate number of staff. Develop flexible job classifications. Ensure yearly training budget. Include training as part of the Goals and Objectives. Keep a database of skills and training for all employees. Use Consultants/Contractors for quality control, auditing, evaluation, and assistance as needed for specific projects. Ensure staff levels are adequate to maintain current system, develop new systems, attend training and improve skills. (Crosses all areas) 	<ul style="list-style-type: none"> Create City-Wide Master Plan Ensure Strategic Master Plan includes Communication Services Implement proactive communication with our customers Implement "Meaningful Performance Measures Acknowledge the investment of the city in communications The involvement of the customers on a regular basis is a critical factor to the overall success of the core service. In general, the organizations and most case studies agreed that the project champion and the major stakeholder should come from the department(s), and that the customer must be kept engaged during the entire project life cycle in order to afford the highest possibility of success. Have an IT Board or Committee in place, which was responsible for selecting and prioritizing potential communication projects. 	<ul style="list-style-type: none"> Organize the Central IT departments as follows: <ul style="list-style-type: none"> Two divisions: Division #1 Application Development and Customer Support, Division #2 Infrastructure and Communications IT Director should report directly to the city manager's office and to an executive IT Planning Board. IT deputy directors should report directly to the IT Director. Group Managers should report to the IT deputy directors. Staff located in departments (performing communication related job functions) need to report to both the IT department and the department they are located in. (IT is the lead department) Create a reporting structure that addresses the issues of the dual reporting nature of technology staff located in external departments. (Cross all areas)
Core Service Area: IT Help Desk		
<ul style="list-style-type: none"> Establish effective means of communicating internally and with customers. 	<ul style="list-style-type: none"> Install a citywide call/problem management system, sharing a common database. Establish service level agreements for each help desk. Create citywide IT Help Desk standard operating procedures. 	<ul style="list-style-type: none"> Look for opportunities to integrate the different Help Desks. Create performance measurements based on meaningful, sustainable data and service level agreements.

Appendix D



Status of Previous IT Plan Goals

A key component of effective planning involves reviewing the activities and outcomes related to previous planning efforts. An understanding of prior efforts helps to provide historical context, reinforce the value of planning, and identify opportunities to refine the planning process.

The City's last major IT planning effort resulted in the development of a *Computer Systems Masterplan* (CSM) in 1994. It was updated in 1996. The CSM identified 42 different technology-related projects. MTP interviewed several ITD managers to identify the outcomes related to the projects that were part of the CSM. These project outcomes are described below. (*Note: The CSM Appendix B describes each project in more detail*)

PC Software Standards & Support

- Standards set
- Needs to be updated
- Limited training

Wide Area Network

- Done
- Ongoing upgrades & expansion
- Adopt new technologies

Department Local Area Networks

- Completed
- Upgrading to faster connections
- Adopting new technologies

City-Wide E-Mail

- Completed
- Standardized on Exchange/Outlook

Wang Migration

- Completed

Payroll Conversion

- Completed

FMS UNIX Migration

- Completed

FMS Enhancement/Replacement

- Currently underway

Purchasing EDI

- Not fully implemented

- Web interface to Boise Cascade

Utility Billing

- Partially completed
- Evaluating outsourcing
- ESD is lead now

Public Access Systems

- Partially completed
- Implemented City web site
- Ongoing enhancements

Geographic Information Systems

- Ongoing parcel database
- Broad application of GIS, not well integrated
- IDTS will advance integration

1990 Census Data Availability

- Not implemented
- Data available on web from Census Bureau

Parks Maintenance Management System

- Completed
- No longer in use
- Currently use other systems for same function

OES Automation

- Completed

Storm Drain Maintenance System

- Completed
- In process of upgrading to new application

IDTS

- In process

Project Management System

- Completed
- Currently being upgraded

PAC II Replacement

- Not implemented

EMIS Replacement

- Completed

Fire Department ARMS

- Software developed
- Program not yet implemented

Police Department RMS (AIS)

- Completion scheduled for 12/2000

New Technologies For City

- Warehouse & Library have implemented bar-coding systems
- PBCE has implemented imaging technologies
- Ongoing

Programming Tools/System Methodologies

- Standardized on software development tools
- Standardized on Oracle for RDBMS

**Project Diversity Board & Commission
Applicant-Appointee Database**

- Was not implemented as a new system

City Clerk Databases

- Migration off Wang complete
- Application upgrade ongoing

Keyword Search Databases

- Completed and integrated into other applications

IDTS Expansion

- Combined with overall IDTS project

Police Department Reporting System

- Integrated with AIS system

Police Department Gang Database

- Completed
- Currently being integrated with AIS system

Animal Control

- Completed

Public Works Cash Receipts

- Completed

Administrative Citations

- Completed

Metroscan

- Completed
- Replaced by FARES

Payroll Entry (Public Works)

- Completed

Metricom WAP

- Completed
- Going to be replaced

Cash Collection (Finance)

- Partially integrated with automated collection system

Bond Assessment (Public Works)

- Converted to Public Works project

Agenda Automation

- Partially completed
- Phase II in process

Cardroom Database Development

- Completed
- Not integrated with FMS

Utility Database (General Services)

- Not implemented

VAX to LAN Conversion (Streets & Traffic)

- Completed

Appendix E



Desktop Computing Environment

HARDWARE			
Desktop PCs		Laptop PCs	
# of Desktop PCs	Oper. System	# of Laptops	Oper. System
3458	NT Workstations	133	Windows NT
5	Windows 98	49	Windows 98
676	Windows 95	687	Windows 95
107	Macintosh OS	2	Macintosh OS
7	OS2	1	Windows 2000
4 (Sparc 5)	Solaris		

[illegible]

Computer Brand/Model	No. of Units	Operating System
HP (netserver or vectra)	76	Windows NT Server 4, HP-UX 10.2, HP UNIX, Novell
Dell (Poweredge or Optiplex)	47	Windows NT Server 4
AVI (Generic Intel)	4	OS2/Warp, SCO UNIX
MAXVISION	4	Windows NT Server 4
DEC	8	VMS, NT 4
SUN	4	Solaris, UNIX
INTEGRAPH	3	Windows NT Server 4
PROCOMM	1	Windows NT Server 4
Macintosh	1	Mac OS
Compaq Proliant	5	Windows NT Server 4
Generic	10	Windows NT Server 4
JDR	1	Windows NT Server 4
MicroVAX	1	VMS
Meridian CD Tower	2	Novell
VAX	2	Open VMS 6.2
Alpha	4	UNIX 4.0 D
IBM	3	AIX

Network/Internet Environment

LAN Connection (Y/N)	WAN Connection (Y/N)	E-Mail Access		Departmental Web Server/Page		
		City	World	Have a web page (Y/N)	Have a web server (Y/N)	
Y	Y	Y	Y	Y	Y	Airport, PW, GS Purch, ESD, S&T, Library, I
Y	Y	Y	Y			G/S Admin 59-01
Y	Y	Y	N	Y	N	OED
			Y			OEA
Y	Y			Y	N	Fire - Bureau of Support Services
Y	N	Y	Y	Y	N	HR, Auditor
Y	N	Y	Y	Y	Y	PBCE
Y	Y	Y	Y	Y	N	Retirement, Redevelopment, PRNS
Y	Y	Y	Y	No	No	Attorney
Y	Y	Y	Y	Y	in progress	Police

IT Support Staff *

List number of IT Department staff (FTE):	98
List number of departmental staff (FTE):	51.5
List number of contract staff (FTE):	7



Appendix F



City of San Jose Technology-Related Project Portfolio Summary

Current IT Projects (currently underway or planned for this fiscal year)

Department	# of current Projects	Estimated Total Budget
Airport	11	\$ 8,060,000.00
Fire	6	No budget indicated
Police	1	\$ 12,500,000.00
Office of Economic Development	1	\$ 20,000.00
Public Works	8	\$ 195,000.00
Library	8	\$ 1,175,000.00
ESD	2	\$ 20,000.00
Retirement	11	No budget indicated
Attorney	1	No budget indicated
Redevelopment	2	\$ 200,000.00
Parks, Rec. and Neighborhood Services	6	\$ 1,076,000.00
Auditor	none	N/A
		\$ 23,246,000.00

Planned IT Projects (planned for next fiscal year and beyond)

Department	# of Planned Projects	Estimated Budget
Airport	10	\$ 33,255,000.00
Fire	2	No budget indicated
Police	1	\$ 5,000,000.00
Office of Economic Development	3	\$ 250,000.00
Public Works	1	\$ 35,000.00
Library	5	\$ 850,000.00
ESD	5	\$ 769,875.00
Retirement	none	N/A
Attorney	none	N/A
Redevelopment	4	\$ 57,000.00
Parks, Rec. and Neighborhood Services	8	No budget indicated
Auditor	none	N/A
		\$ 40,216,875.00

Appendix G



Summary of IT Policies, Standards, and Guidelines

The IT policies, standards, and guidelines described on the following pages are an important part of an IT governance framework. They were designed to provide guidance and help the City accomplish the IT goals and objectives that are described in this plan. The goal is to provide guidance and promote consistency. A good policy, standard, or guideline is one that is used.

A subcommittee of the IT Planning Board met with members of the IT Department to develop an initial list of IT policies, standards, and guidelines that need to be developed. The goal was to come up with a list that would support the vision enablers and strategic initiatives and address the weaknesses that were described earlier in this plan. The IT Planning Board validated this initial list and assigned specific responsibilities to fully develop the policy, standard, or guideline and bring them back for the Board's review and approval.

These policies, standards, and guidelines should be viewed as an initial list and not a final list. They should be regularly reviewed to make sure they are relevant to the business and accomplishing the City's IT management goals. Over time, they should be revised, deleted, or added to as necessary.

Policies

Description	Type	Who	When	Linkage
IT Investment(s) <ul style="list-style-type: none"> ✓ Information is a strategic business asset ✓ Linkage to business objectives and IT Masterplan ✓ Customer service/public access impacts ✓ Thresholds for ITPB review ✓ Adherence to City technology and data standards ✓ Linkages to other systems and current IT environment ✓ Address potential partnerships ✓ Feasibility study & Cost-benefit ✓ Detailed project plan and project management structure ✓ "Buy vs. Build" or COTS approach ✓ Priority consideration for multi-departmental investments 	P	ITPB	6/22/00	VE 1-8 SI 6,7 W 2,3,4,8,9
Use of City-Owned IT Resources <ul style="list-style-type: none"> ✓ PCs ✓ Email ✓ Internet ✓ Cell Phones 	P	ITPB	6/22/00	VE 9 SI 3,4,7,10 W 3,4,8
Desktop and Network Management	P	ITD	6/22/00	VE 2,4,5,7,8 SI 7-10 W 2,3,4,9
Public Access to Information & Services <ul style="list-style-type: none"> ✓ All "non-exempt" info. is open to taxpayers ✓ 24 X 7 access ✓ "Once and done" ✓ Criteria for determining web services ✓ Privacy and security ✓ Equitable access ✓ Consistent and coordinated web interface ✓ Privacy & Security 	P	ITPB	6/22/00	VE 1-7 SI 10
Project Management Framework <ul style="list-style-type: none"> ✓ All projects > \$XXXXK will use methodology ✓ Project ownership, management team, accountabilities ✓ Reporting requirements 	P	ITPB	6/22/00	VE 3,7,8,9 SI 6,7,9 W 2,3,4,8,9

Type Codes: P = Policy S = Standard G = Guideline
Linkage Codes: VE = Vision Enablers SI = Strategic IT Initiative W = Weakness

Description	Type	Who	When	Linkage
Training for IT Support and End-Users ✓ No new system w/o corresponding investment in training ✓ Training budget ✓ IT Training plans	P/G	ITD/HR	6/22/00	VE 9 SI 4,9 W 6,7,9
Departmental IT Plans	P/G	ITPB/ ITD	6/22/00	VE 1-10 SI 2,3,4,5,7,8 W 1,2,3,5,8,9
IT Recruitment and Retention ✓ Recruitment/retention incentives ✓ Skills-based vs. application-based assignments ✓ Workforce Investment Act	P/G	ITD/HR	6/22/00	VE 3,10 SI 5 W 5,7
Security ✓ Data (backup, virus protection, access, etc.) ✓ Network ✓ Application ✓ Web access ✓ Transactions	P/S	ITD	6/22/00	VE 1-5,8 SI 7,9,10 W 4,9
IT Asset Management ✓ Lifecycle costing/budgeting Replacement cycles Maintenance & operations ✓ Asset management tools ✓ Buy vs. lease analysis Criteria for "multi-year" IT budgeting	P/S/G	ITPB/ ITD	6/22/00	VE 2,4,5,7,8 SI 7,8,9 W 1,2,3,4,9
Type Codes: P = Policy S = Standard G = Guideline Linkage Codes: VE = Vision Enablers SI = Strategic IT Initiative W = Weakness (see Page G-6)				

Standards

Description	Type	Who	When	Linkage
Desktop and Network Operating Systems	S	ITD	6/22/00	VE 2,4,5,7,8 SI 7-10 W 2,3,4,9
Network Design, Interface, & Protocol	S	ITD	6/22/00	VE 2,4,5,7,8 SI 7-10 W 2,3,4,9
Desktop Software Suite ✓ Word processing ✓ Spreadsheet ✓ Email ✓ Calendar/Scheduling ✓ Database ✓ Internet browser	S	ITD	6/22/00	VE 2,4,5,7,8 SI 7-10 W 2,3,4,9
Midrange/Servers Operating System	S	ITD	6/22/00	VE 2,4,5,7,8 SI 7-10 W 2,3,4,9
Data Access/Management	S	ITD	6/22/00	VE 3,4,7,8 SI 7 W 3,4,9
Project Management Tools	S	ITD	6/22/00	VE 3,7,8,9 SI 6,7,9 W 2,3,4,8,9

Type Codes: P = Policy S = Standard G = Guideline
Linkage Codes: VE = Vision Enablers SI = Strategic IT Initiative W = Weakness (see Page G-6)

Guidelines

Description	Type	Who	When	Linkage
Project Management Methodology	G	ITD	6/22/00	VE 3,7,8,9 SI 6,7,9 W 2,3,4,8,9
Feasibility Study	G	ITD	6/22/00	VE 2-8 SI 2,6,7 W 1-4,7-9
Cost-Benefit Analysis	G	ITD/ Budget	6/22/00	VE 2-8 SI 2,6,7 W 1-4,7-9
City Web Page Design	G	ITD	6/22/00	VE 1,4,6,8 SI 3,6,7,8,10 W 2,4,9

Type Codes: P = Policy S = Standard G = Guideline
Linkage Codes: VE = Vision Enablers SI = Strategic IT Initiative W = Weakness (see Page G-6)

IT Vision Enablers

1. 24 X 7 public access to government
2. Acquire technology that is adaptable and interoperable
3. Partnerships with city departments, other governments, and private sector
4. Open architecture solutions that enable sharing & interconnection
5. Shared networks
6. Reduce transaction times for those using government services
7. Leverage technology investments to benefit multiple departments and citizens
8. Design and procure systems that maximize use of current information and technology
9. Training for IT staff and end-users
10. Aggressive IT recruitment & retention

Strategic IT Initiatives

1. Create an IT Planning Board and Develop an IT Masterplan
2. Develop Departmental IT Plans
3. Develop an IT Communications Plan
4. Improve IT Staff and End-User Training
5. Improve IT Staff Recruitment and Retention
6. Formalize Project Identification, Prioritization, and Management Methods
7. Update Information Management Standards, Policies, and Guidelines
8. Integrate “Like” IT Functions Throughout the City
9. Develop IT Performance Measures and Service Level Agreements
10. Develop a City of San Jose Electronic Government (E-Government) Strategy

Weaknesses

1. IT Budgeting
2. Fragmented IT Investments
3. Lack of Formal IT Governance
4. Dated or Nonexistent IT Policies, Standards, and Guidelines
5. IT Recruitment and Retention
6. Limited IT Training Budget
7. Over Reliance on Contractors
8. Informal IT Project Management and Accountabilities
9. Current Systems May Not Support Business Objectives

Appendix H



Implementation Plans and Resource Requirements

Note: Implementations plans are being developed for each of the ten Strategic IT Initiatives that were described earlier in this plan. They will be added to this Appendix as they are completed. As new initiatives are identified over time, detailed workplans will be developed and added to this section once they have been reviewed and approved by the IT Planning Board.

